

ABSTRACT

A planar lightwave circuit type variable optical attenuator with a small polarization dependent loss is provided. By setting the waveguide birefringence (absolute value) in first and second optical coupler sections equal to or greater than 3.5×10^{-4} , the polarization mode coupling is made equal to or less than -25 dB, and the effect of the polarization dependence caused by the polarization mode coupling at the cross port of the first and second optical couplers is suppressed. In addition to or independently of this, the arm waveguide length can be designed to be equal to an integer multiple of the optical beat length obtained by dividing a used optical wavelength by the waveguide birefringence.